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Rail Road News.

Indiana Railroads.

Some thirty-four miles of the Indianopolis and Bellfontaine Railroad, in Indianna, is nearly or quite ready for the iron. The Company have determined to lay the T rail, which they expect to provide early in the season. This portion of the track extends from Indianopolis to Andersontown, the County seat of Morrison County, and penetrates a fine agricultural region.

The Indianopolis and Peru Road has its superstructure completed from Indianopolis to Noblesville, a distance of twenty miles, and has recently made a contract at Pittsburg for iron to complete this portion of the road. The iron is deliverable in June, and the Company expect to be ready for the cars in October. The northern terminus of this road is Peru, on the Wabash and Erie Canal.

Both of these roads connect at Indianopolis, with the Madison and Indianoplis Road, and will contribute largely to the buisnees of this latter work.

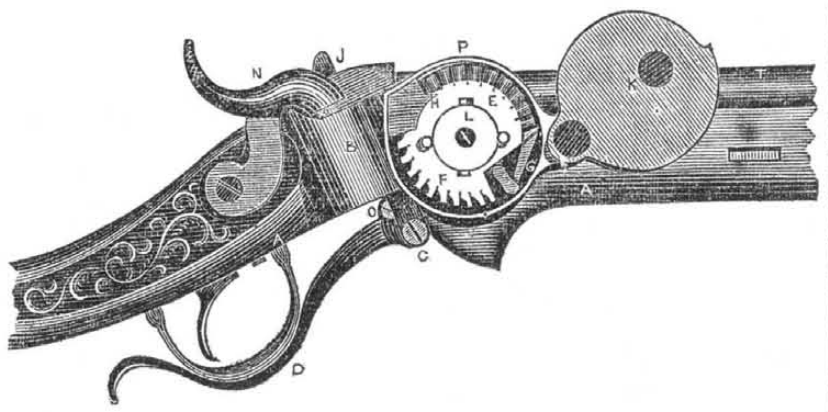
The Knightstown and the Rushville Roads, both of which connect with the Shelbyville Road, and by that with the Madison and Indianopolis Road at Edinburgh, are rapidly approaching completion. Both have full purchases of iron, and are rapidly laying it down. They will be ready for the cars early in the Fall.

Coal in Locomotive Engines.

We look, says the Mining Register, in sorrow at the terrible devastation made in our timber by the Reading Railway Engines. We are not about to complain that reasonable effort has not been made by that Company to discover some mode of burning coal so as to prevent the metalic destruction they attribute to its use. But inasmuch as the value of our coal is regulated in part by the convenience of timber for propping the mines; and as the Colliers of Schuylkill County already complain of the advantages which other coal fields possess, it is of the greatest importance that we be not placed in a still worse position, by cutting off our supplies of prop-timber. In the acknowledged saving which would be made by our Railway if coal could be substituted for wood fuel, we have assurance that every means will be taken to put a stop to the present fearful consumption of our timber. And in this hope, we suggest the attempt to apply the hot-air principle as well under the grates, as in jets of air on the top of the fire. It would be easy to try it at small expense, and our experience in burning coal in ordinary stoves enables us to entertain great hopes that much fuel would thus be saved and the destruction complained of entirely obviated.

The New-Bedford Mercury states that Captain Timothy Colby in that city has a bed-cord made of whales' sinews, which has been in the Colby family since 1640—209 years and has been used by Timothy Colby 41 years, and it is now as good as a dozen new hemp bed-cords. It has never been broken.

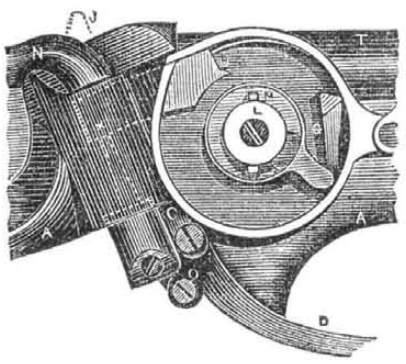
SHARPS' BREECH-LOADING PATENT RIFLE.---Fig 1.



This Rifle is the invention of Mr. Christian Sharps, now of Mill Creek, Pa. It was patented in 1848. The simplicity of its construction, will be apparent by the following description.

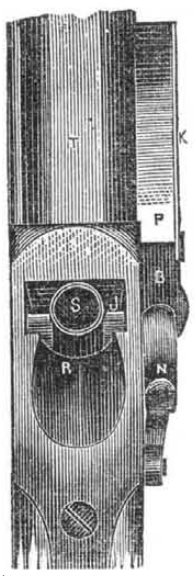
Fig. 1 is a side view showing the cap box open. Fig. 2, is a section showing the interior of the cap box. Fig. 3 is a top or plan view. The same letters refer to like parts. The engravings represent the barrel and the butt broken off, (as every body understands such parts) in order to present enlarged and clearer views. A represents the wooden stock. T is the barrel; B is the nipple or priming chamber communicating by a small orifice with the charge in the barrel, N, is the hammer. The charge is put in at the breech, and the breech itself is a moveable steel back, J, that is pushed up like a wedge to back the charge iu the barrel, and then drawn down to allow another charge to be inserted. There is therefore a strong metal chamber behind the butt of the barrel, and a broad slot in it, in which the moveable steel breech, T, is thrust

Fig. 2.



up and down. This sliding breech is secured to a swivel pivot, O, which moves the breech up and down for the purpose stated, by being operated by the handle, D, which moves on a centre pin, C, thus allowing said handle to be drawn inwards to the butt (fig. 1) of the stock, when the breech is to be raised and pushed outwards (fig. 2) for the breech to be lowered for charging. To charge, the handle D is pushed forward, as represented in fig. 2, when the ball, S, is thrust along the groove, R, into the chamber of the barrel, when the handle, D, is drawn back, as in fig. 1, the sliding steel breech, J, is pushed up, wedging behind the charge, and it is then loaded ready for firing. It is designed for caps, and is self-capping. This is done by the caps, E, being set on spurs of a small moveable wheel, F, in the cap-box, P, as shown in fig. 1. This wheel is taken out, armed around with caps, and set on to two small catches, M, which project out from each side of a barrel spring box, L. The spring is not shown, but it will be understood to be attached to the box, L, inside, and to its screw arbor. The object of this barrel spring is to turn round the wheel, F, with the caps on it, towards the priming box, B. At H is a small iron plate, and behind it is a narrow channel, into which the caps are carried inwards, stripped off, one by one, as they pass through the channel behind the plate, H, and the one pushes the other forward above the small nipple opening, when the nipple, X, when rising, (as it forms part of the sliding breech) catches the cap, and thus caps itself. The wheel moves round one cap every shot, by one being exploded to make way for another to pass into the said channel. The wheel may be capped for 50 rounds. In fig. 2, in the inside of the spring barrel box, P, attached to the barrel box, L, there is a catch, G, shaped like an angular lever. This catch is for the purpose of holding the barrel box, under the plate, H, after it is wound up, to take off the wheel, cap it, and put it on again. It is then set free for the wheel to move gradually round. K is the lid of the cap box. This gun can be capped like another, without the self-capping

Fig. 3.



auxiliary action, and presents a breech-loading rifle of singularly simple construction.—This rifle can be loaded and fired nine times in one minute. Its accuracy is equal to the common rifle. The picket, or patched ball can be used. It can carry half a mile with safety, and in one instance it was fired nine times in one minute and all the balls were placed within a circle of six inches diameter, at forty yards distance. Mr. Albert S. Nippes, is now making about 700 of them of the very best materials, and of superior workmanship. Orders addressed, (*p.p.*) to Mr. Nippes, Mill Creek, Manyunck Post Office, Philadelphia Co., Pa., will meet with prompt attention.

Useful Receipts.

Butter.

This is an article of domestic food, more of which is consumed in the United States than in any other country on the face of the globe. Good sweet butter, oh how delicious. It very often happens among families in our cities, that they will purchase good sweet butter at the stores, and which in a day or two becomes vitiated in taste. This is owing either to the manner in which it is salted and packed, or the manner in which it is kept after it is purchased. Much butter is spoiled from using salt containing lime and other substances which hasten its decomposition. Salt can easily be purified by pouring upon it a little warm water and allowing it to drain; it dissolves and takes out the lime and other extraneous substances, and leaves the salt nearly pure. The quantity usually added to butter is one ounce to the pound. After butter has become rancid, it can be restored and made nearly sweet by a very simple process. This is, to wash it well in cold water, often changed, and after pressing out the water, salt it anew and add a little sugar, say half an ounce to the pound. This will be found to render it much more palatable, although it may not entirely restore that delicate flavor peculiar to new and sweet butter, which once lost can never be restored.

Butter should be kept in a cool, airy, dry place. The majority of city pantries and cupboards appear to be designed for the purpose of giving the butter kept in them, that peculiar odorous flavor (so agreeable to a Hottentot) termed rancidity.

Simple Cure for Croup.

We find in the Journal of Health the following simple remedy for this dangerous disease. Those who have passed nights of great agony at the bedside of loved children, will treasure it up as an invaluable piece of information.—If a child is taken with croup, instantly apply cold water, ice water if possible, suddenly and freely to the neck and chest, with a sponge.—The breathing will almost instantly be relieved. So soon as possible, let the sufferer drink as much as it can; then wipe it dry, cover it up warm, and soon a quiet slumber will relieve the parent's anxiety, and lead the heart in thankfulness to the Power which has given to the pure gushing fountain such medical qualities.

Extreme Cold.

The Vermont Chronicle, published at Windsor, Vt., says, that, on the morning of the 6th ultt., the thermometer fell in that village as low as thirty-five degrees below zero; in Woodstock, thirty-eight, and at Northfield, forty.—In New York City, at 7 A. M.., it was 16° above zero.

Colder Yet.

The Quebec Gazette says, that on the 5th ult., the mercury fell, at Porteneuf, on the St. Lawrence, 20 miles S. W. of Quebec, to fifty-two degrees below zero, and continued below forty during the whole day. In this city, it did not fall lower than 12 degrees above zero.

Warning for Apothecaries.

A young lady in Trenton, N. J., a few evenings since, (says the State Gazette,) experienced a narrow escape from death, by having administered to her a spoonful of creosote, which was sent from an apothecary's shop in a vial very improperly labelled assafœdita. The mistake was not discovered until the fatal poison was entirely swallowed, and the most agonizing pains ensued.

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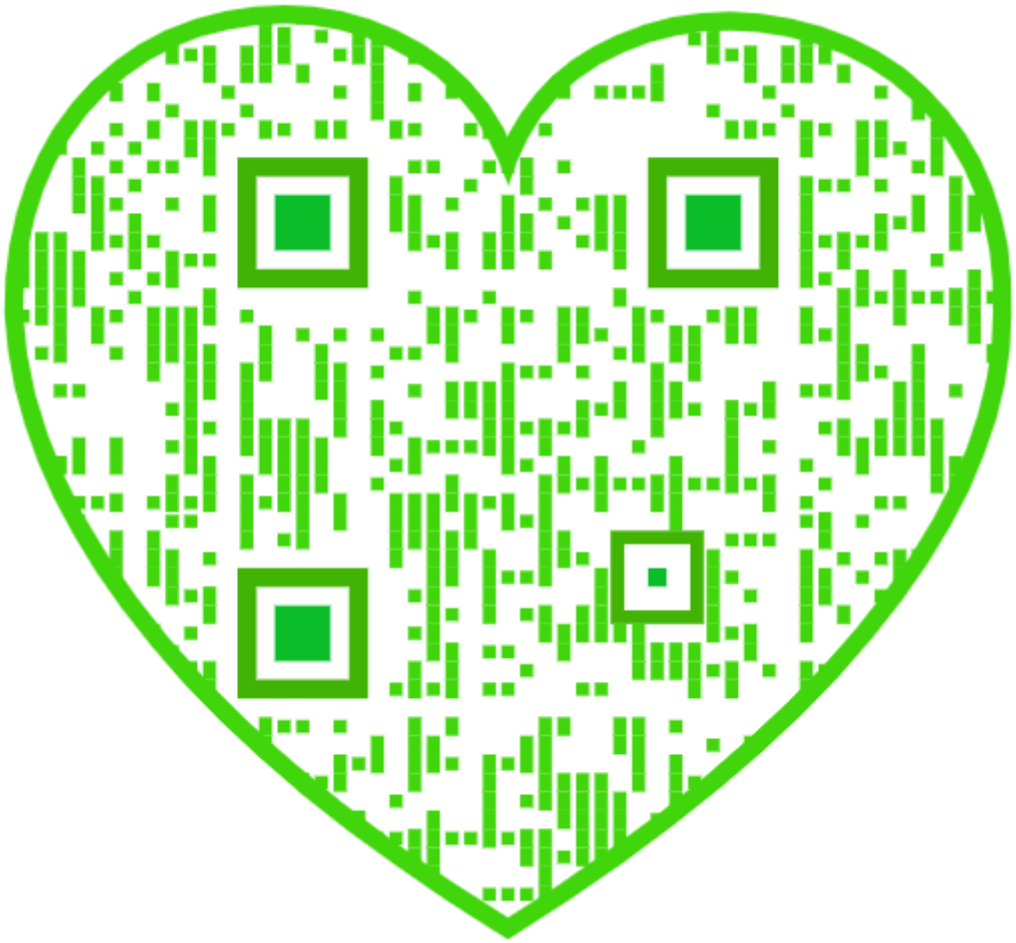

Miscellaneous.

Correspondence of the Scientific American.

WASHINGTON CITY, March 5, 1850.

During the past week, the Committee appointed by the Convention of Inventors, held at Baltimore, have had several meetings in this city for the purposes of drafting a bill which is to be submitted to Congress, amendatory of the Patent Laws. One of the Committee says it is clear to him, from an experience of 18 years, that there should be established at Washington, a Court to try all patent cases. This would effectually prevent the delay by repeated adjournments of courts for the purpose of procuring additional evidence; for with such a court on the spot, all the necessary documents could be procured instantly from the Patent Office. Such a court in a short time would become highly competent in their decisions.

It is also argued that any invention which it new in America should be entitled to a patent. England has ever done this, and why not we? Inventions may be kept in secret use in England many years, by which they may secure the whole trade; but when necessity causes the invention in our country, or a patent is obtained and the thing in use, the foreigner, as soon as he finds he is matched, comes out here. Under such circumstances then, it is asked, why should our patentee be put down because it was known before? Our government should at least be as liberal as a monarchy.

The Committee on Patents of the House are preparing a long report relative to the construction of U. S. patent machines in Canada, by which goods are manufactured and sent into the United States for sale.

From a statement made yesterday, it appears that 1¾ inches rope of American water rotted hemp will sustain a greater weight than a similar rope of foreign hemp of 200 pounds.

The Regents of the Smithsonian Institute have decided upon Harmon's scheme for the proposed Architectural Gallery. It is to be supplied by competition designs from Architects; and is to answer the double purpose of a Gallery of Design, and a Professional Directory, where the most approved models can be contemplated, and the names of meritorious artists placed conspicuously before the public. The falling in of the principal floor of the Institute was a very curious affair, and although the contractor is blamed, he asks a suspension of opinion until the subject has been fully investigated. Had it happened after the completion of the building, there would in all probability have been a great loss of life. More than a year ago the mechanics of this District presented a memorial to Congress against the proposed mode of building.

The contractors are getting along rapidly with the wings of the Patent Office. They are now in the second story of the east wing. It is to be hoped that Congress will make an early appropriation, as a number of the workmen have been laboring without pay for four months. The due bills they receive are shaved enormously by the brokers.

The gas competition here is getting to a fever heat, and owing to there being so many Richmonds in the field, the Washington Company has been compelled to advertise a further reduction of price. The National Hotel is now nightly lighted with Brown's Patent Water Gas, which, in addition to its beauty and cheapness, is free from the unpleasant effluvia of the ordinary coal gas. It is made by causing the vapor of rosin to combine with the hydrogen of water.

Owing to the recent accident on the Baltimore railroad by the springing of a rail, it is said a bill will be shortly introduced into Congress, requiring all Railroad Companies to adopt the English plan of having persons stationed at every three miles to examine the tracks daily.

Missouri is to be represented in the Washington Monument by a slab of solid iron one taken from one of her mountains. *

[To clear up one part of the above, and of which the Baltimore Convention Committee are ignorant, if their opinions are stated correctly, we would state, that a patent will be granted for any invention that is new in America, if not described in a foreign publication. Suppose a machine is invented and used in secret here, for years, that will not prevent another from getting a patent for the same thing, nor invalidate the patent when granted. A foreigner cannot come out here and use his long kept secret machine, if a patent is secured by an American before he arrives.—[ED.

Carbon as food for Plants.

Mr. J. W. Rogers says he was refused the golden medal offered, a few years since by a public body in Ireland, because he had set forth that carbon, given to the roots of plants, would invigorate them. He observes, "This was then deemed a fallacy, but I am happy to say, any one may now alledge the same without being laughed at. At that period a popular chemist had set it down, that all plants depended upon the atmosphere for the carbon they contained, but the leading chemical writer of the present day says very indifferently. Brande states, in the 6th edition, published 1848, that although the accumulations of decaying matter which chemist call humus performs an important part in vegetable nutrition, it is not by its direct absorption and assimulation, but by its influence a source of carbonic acid, which is partly taken up by the juices of the roots, and partly envolved into the atmosphere, so that plants, independent of their leaves can thus receive carbonic acid."

Mr. Squarey, in his treatise on Agricultural Chemistry, says, "the use of charcoal along with manures consists in its quality for absorbing gases—fresh charcoal can absorb 90 times its volume of carbonic acid gas. Charcoal absorbs the ammonia that is in the manure, and gives it out to the plants after showers of rain, and the removal of the gas by the rain from the charcoal, restores its original powers of absorbing gas; so that this substance, when applied to the soil, acts as a constant reservoir for this valuable gaseous substance, a property which neither time nor any circumstances can alter. Even when, in the course of cultivation, the charcoal originally applied on the surface of the land, is ploughed under the surface—even there it does not lose its power of absorbing the gases, but carries on its operations with undiminished energy."—Professor Johnston, in his valuable work on the Elements of Agriculture Chemistry, strongly reccommends the mixing of manure and other rich applications to the soil, but apprehends that the cost and scarcity of this substance may preclude its being brought into general use.

The Force of Imagination.

A Lucchese peasant, shooting sparrows, saw his dog attacked by a strange and ferocious mastiff. He tried to separate the animals, and received a bite from his own dog, which instantly ran off through the fields. The wound was healed in a few days, and the dog was not found; and the peasant, after some time, began to feel symptoms of nervous agitation. He conceived that the dog, from disappearing, was mad; and, within a day or two after this idea had struck him, he began to feel symptoms of hydrophobia. They grew hourly more violent; he raved, and had all the evidences of this most violent distemper. As he laid, with the door open to let in the last air that he was to breathe, he heard his dog bark. The animal ran up to his bedside and frolicked about the room. It was clear that he, at least, was in perfect health. The peasant's mind was relieved instantly; he got up with renewed strength, dressod himself, plunged his head into a basin of water, and, thus refreshed, walked into the room to his astonished family. The statement is made in a memoir by Professor Barbantini; and it is not improbable that many attacks of a disease so strongly dependent on the imagination might beequally cured, by ascertaining the state of the animal by which the bite was given.

Good Investment.

Massachusetts has about three millions of dollars invested in school-houses. Mr. Everett it was who said so quantly, "If you reduce the wages of the schoolmasters, you must raise those of the recruiting sergeant."

U. S. Astronomical Mission.

The National Intelligencer has received a copy of the Valparaiso Mercury of November 8th, from which it extracts the following:

"By the last steamer, Lieut. Gilliss, of the United States Navy, a distinguished astronomer, arrived in Chili, charged by the Goverment of the United States with a scientific mission of the highest importance—namely, to ascertain the true distance of the earth from the sun; the computation of which has, until now resulted only in serious mistakes. Various European savans, similarly commissioned with Lieut Gilliss, are about to occupy themselves with this work at different points of Europe and China. The Goverment of the United States has taken upon itself the part that belongs to America, and Chili has been selected in South America on account of its clear skies and natural topographical advantages.—Mr. Gilliss has received the instruments which he awaited; and, having joined the suite of gentlemen who are to accompany him, and who arrived at this port by another vessel, has gone to Santiago, where he has met, on the part of the authorities and private citizens, the most frank and cordial co-operation. The hill of Santa Lucia, encircled by the streets of the capital, is the site chosen for the observatory, the ocupation of which will not be delayed.—We congratulate ourselves upon the preference shown to Chili by the United States Government and upon the occasion of having in our midst such illustrious guests. We trust that they may find in its pure sky the revelations of science, and the enchantments of life in the cordiality of its inhabitants."

Where is the Wilderness?

At the beginning of this century it was in Ohio and Indiana. Twenty-five years afterwards it was in Michigan, Wisconsin, and soforth. Last year it was in Minesota Territory. Next year we will have to seek it in Nebraska and around the lake of the Woods.

Where the steamboat goes, there the wilderness disappears. And the steamboat is soon to startle the Indian and wake the echoes of the forest above the falls of the St. Anthony, for a boat is now building there which the St. Paul's "Chronicle and Register" of the 19th January says is "rapidly progressing." The time for launching her has even been fixed,—"as soon as the river is clear of ice." The builder hails from Bangor, Maine, the opposite extremity of the Union due east, and is said to be "a highly skilful workman." The dimensions of the craft are 108 feet keel, 120 feet deck, 25 feet beam, and will draw twelve inches light. The machinery is in course of construction at Bangor, and will be at the Falls by the opening of navigation.

Professional Beggars.

The Itallian Benevolent Society in New Orleans caution the public against the hordes of professional beggars from Italy, now in the United States. They say these solicitors of elemosonary aid are impostors, who make an annual visit from Italy as professed beggars and follow it as a regular trade. The number is annually increasing, for at the close of the season they return home with more money than they ever saw before, and their successes stimulate others to follow their example. The brig Louisiana, which recently arrived there from Genoa, brought as passengers seventy of these characters, covered with rags, vermin and filth, all of whom are now no doubt following their vocation. The police of the cities should pay their respects to these impostors and rid the streets of their presence.

[The above is true in every particular.—There are Italian beggars' rendezvous in this city, and the fields of operation for begging campaigns are laid out with great skill. The beggars carry printed certificates, which are nothing but forgeries.

Lectures on the Mysterious Knockings at Rochester.

The Rev. Mr. Brittan delivered two mysterious lectures on this mysterious subject, before two mysterious audiences, in the Hall of the Society Library, last week. He compared the human mind to the Electric Telegraph, and in a remarkable happy manner, left the mysterious knockings as mysterious as ever.

Early Closing of Dry Good Stores.

A very large meeting was held in the Tabernacle, this city, on Wednesday evening, last week, for the purpose of drawing public attention to the evils under which the Retail Dry Goods Clerks labor. Their hours of toil average about fourteen the year round, and they desire to have them reduced—in other words, that the stores should not be kept open later than 7 o'clock, P. M., Saturday evenings excepted. A number of resolutions were passed, expressive of the evils of the long hours, with a request that our citizens would discountenance evening shopping as far as practicable. The Dry Goods Clerks have our sympathies and good wishes. No person should trade with the Dry Goods, or any other stores, after 7 P. M. It is a shame to our enlightened age that so many have to labor during 14 and 16 hours every day to obtain a livelihood. Ten hours of labor is plenty for any man, and as much can be performed during 10 as 12 hours, the year round.

Great Discovery.

That genius of a wag, Fitzgerald, of the "City Item," has made a most important discovery, whereby the nation will be enabled to save a great deal of money. The discovery is nothing less than a new plan for *moderate* and immoderate dram drinkers to get tipsy-turvy, without either smelling London Porter or Ferintosh. The plan is a very simple one, only to spin round rapidly on the heel of one foot as many times as may conduce to give the performer, according to his moderate or immoderate desires, that beautiful street attitude, denominated "walking the chalk with a brick in your hat."

Explosion of a Locomotive.

On Friday, the 1st inst., a locomotive boiler exploded at Whitehill, N. J., on the Camden and Amboy Railroad. Two engineers were killed and a number of others were wounded. When will there be an end of such accidents? Surely there is a strong necessity for the passage and execution of such laws as will tend to render explosions of boilers more like miracles than common occurrences.

A Righteous Verdict.

A young girl named Susan Davis, has recovered a verdict of $5,400 against her former employer, a Mr. Smedley, a manufacturer of worsted shawls, &c., in Kensington, Philadelphia Co., Pa. It appeared that after she left his employ, he commenced a series of persecutions, and on three occasions had her arrested on the charge of stealing, she being in each instance honorably discharged by the magistrate.

A Great Railroad Project.

By the late news from Europe, a plan for a Railroad is proposed, to extend from Calais, in France, (connected with the English Packets,) to extend to Moultan, in India. It will cost as much to build it as the whole amount of England's debt. It never will be built, because it will not pay, and because the right of way cannot be purchased, from such nations, as Austria.

Behind the Age.

Among all her seaward-looking cliffs, Spain has not a single light-house, from the Pyrenees to Point Europe; she has no railroads, no canals, no telegraphs; and untill latelythere has been no safety for travelers on the highways.

Works on Science and Art.

ICONOGRAPHIC ENCYCLOPEDIA.—Part 6 of this splendid work, by Rudolph Garrigue, Barclay street, N. Y., has just been issued. The plates contain illustrations of human anatomy, geography of America, and natural history of its animals, ornithology, whale fishing, and general natural history. The letter press is excellent, and the matter very clear, condensed and interesting. We cannot speak too highly of this work—the plates alone are worth the price of it, viz., 20 steel plates in every number, which is $1, or 5 cents singly for each plate, nearly every one of which has 20 figures in it.

A. McNair Cunningham, Esq., of Beaufort, S. C., is authorized to receive subscriptions for the Scientific American.

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For the Scientific American.

The Treatment of Piles on Mechanical Principles and by Self-Management.

That some impediment to the return of blood from the hæmorrhoidal veins is the cause of piles, has been reiterated, in all surgical works, for ages. That the most frequent cause of that impediment, upon the removal of which success in treatment almost entirely depends, should have been constantly overlooked by practical surgeons, a keenly discriminating class, is really extraordinary. Like the rest of the profession, however, I followed the routine practice for more than twenty years; and during that period I suffered from that complaint more than most of my patients. Thrice I submitted to the operation for the removal of such humors; and I was making up my mind to undergo the operation a fourth time, when a very ordinary occurrence led to a train of reflections, and suggested a remedy—*the* remedy which I am now about to promulgate through your pages.

Horses, cows and other quadrupeds, are seldom ever afflicted with piles. The reader can call to mind whether or not he ever saw a case in a horse or cow, or any other quadruped.—Monkeys and pug-dogs are reported to suffer sometimes from the inward variety; but among those animals it is comparatively of rare occurrence. Among the human race the larger half suffer from piles more or less almost continually. When these facts are contrasted, the first inference is likely to be, that bipeds suffer more than quadrupeds, because their food and mode of living are more stimulating and artificial; but this is not the true explanation. It is the posture constantly assumed by man—the perpendicular attitude—whilst undergoing exertion, that causes his affliction in this way. An amount of intestine larger than is consistent with the healthy function of the part, is forced into the pelvis; and it becomes so wedged within that cavity, by the spasmodic rigidity of the sphineter muscle from below and by the weight of the abdominal viscera added to the action of the abdominal muscles from above, as to hamper, or stifle, or almost strangle the paristaltic action. In proportion as the paristaltic action of the wedged intestine is restrained or oppressed, its action is excited beyond the standard of health, as if the bowel were making a struggle to liberate itself; and this increased action is propagated to the sphineter muscle, causing, in that muscle, constant and undue tension, and all the other morbid appearances of the past.

When only a little more than is proper of intestine is thus wedged within the pelvis, simply standing for any length of time in an erect posture, or delivering an oration, or any act which ever so slightly compresses the whole mass of intestines within the abdominal cavity, will increase the patient's suffering. Lifting heavy weights, coughing, jumping and jolting, straining in any way, tight lacing about the body, and all circumstances that shake down and wedge into the pelvic cavity more intestine, will still more augment the patient's suffering. Also any accumulation of other matters within the pelvic cavity, as fœces within the rectum, flatus, water in the bladder, the gravid uterus, &c. &c., will more and more tighten the wedged condition of the intestine, and, in a corresponding degree, augment the patient's suffering.

That this is a correct view of the case, is manifested by the nearly instantaneous relief which ensues on instituting suitable measures for liberating the half-strangled intestine. A patient may be suffering intense agony in this way, yet as soon as the wedged intestine is liberated by manual aid, and rises above the brim of the pelvis, the relief is complete and almost instantaneous. If there be flatus, the operator will sometimes hear the intestine fall, as it were, over the brim of the pelvis into the cavity of the abdomen. In less than half a minute the patient will sometimes say "I am quite easy;" and at the same time the operator can see the pile, which just before was distended almost apparently to the bursting point, become flaccid, like a grape which has lost its inside.

Some manual dexterity and a sufficient knowledge of the anatomy of the parts, are required to enable a patient to relieve himself and to prevent the self-infliction of additional pain from mis-directed pressure and bungling effort. But every surgeon in daily practice possesses tact and knowledge enough for this purpose; and a patient has only to obtain the assistance of his family "doctor" for once or twice, or till he acquire sufficient dexterity to relieve himself. It is moreover very essential that the patient should acquire this dexterity because he ought to have recourse to it daily, and after every evacuation. My practice is, to place the patient in a proper attitude—that of a quadruped standing—and then instruct him to relax the abdominal muscles and the spheneter ani. I then place his own fingers upon the parts, and place my fingers upon his; and then, as the contents of the pelvic cavity are gently raised, the patient can feel the yielding under his own fingers, and he presently becomes expert enough to operate for himself. I know not how to communicate some other minutiæ—perhaps non-essential—without exposing myself to the imputation of indelicacy; but every practical surgeon, if he will mentally admit the cause, will readily recognize every necessary mode of proceeding, and will be able fully to instruct his patient in his own case.

That which has been already advanced simply affords immediate ease—by-the-bye, no inconsiderable blessing to whomsoever is writhing with the bull-dog like grip which results from an inflamed humour being within the pinch of a spasmodic sphineter. The next consideration is to effect what may be called the cure, or to prevent the intestine from becoming again wedged within the cavity of the pelvis. This is liable to recur from any of the causes which originally produced it, as a slight strain, a jolt, pressure on the abdomen, a cough or sneeze, increased paristaltic action from physic, the mere movement of flatus, &c., whilst in an upright posture; and it will require to be again and again relieved, as above specified. To effect a cure the irritability and rigidity of the sphineter ani must be relieved by a medicated stump or short rectum longie, used *secundem artem;* and by diligently keeping the intestine from remaining lodged in the pelvis. I assume that a cushion of fat will soon form in the omentum, so as to prevent the too easy descent of the intestine into its confined situation, if it be diligently kept from remaining wedged within the pelvis; whereas, if it be suffered to remain wedged, absorption of fat from mere pressure will keep open the aperture so large that semi-strangulation will be almost continual, and its consequences will torment the sufferer for years.

Before I had ascertained the true rationale of such cases, besides submitting thrice over to the operation for their removal, I tried every usual remedy—of which several are not quite so innocent as being simply useless; topical astringents, for instance, increase the rigidity of parts which actually require relaxation. In all cases not complicated with other other disease,—that is, when there is neither ragades, abscess, fistula, stricture of the rectum, nor any other complication, I would recommend the patient to rely upon manual aid, and throw 'physic to the dogs.' The removal of piles with the knife, the scissors and the ligature, their puncture, and even the application of leeches to them, are all more or less painful, not altogether free from danger, generally unnecessary, as the piles can very effectually be removed as above, and nearly useless, as the piles will grow again, like a bunch of grapes, if the wedged condition of the intestine remain or be re-produced.

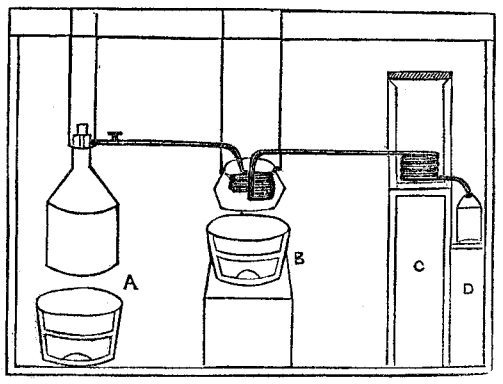
If any of my own countrymen are now suffering from piles, and are too poor to employ "a doctor," I will attend them, without charge, if they will call at 348 Race street, Philadelphia, before I leave, which will be early in March. EDWARD KING.

Race street, Philadelphia.

Newly Discovered Properties of Heat in Combination with Steam.

Concluded from page 179.)

Having seen the thermometrical degrees at at which steam, apart from water, is expanded by heat into larger volumes, it becomes important to learn the actual quantity of heat required for each degree of expansion, and the apparatus represented by the following diagram will show, first, how small is the quantity of heat required for doubling a volume of steam apart from water, when compared with the quantity of heat required for forming a second volume of steam of the same tension—and, secondly, shows that heat in combining with steam is subject to, and controlled, by peculiar laws, perfectly distinct from those which obtain when heat combines with water for the formation of steam, which requires equal increments of heat for equal increments of volume, while on the contrary, when steam apart from water is expanded by heat, it is not only doubled in volume by a comparative trivial quantity of heat; but every additional increase of volume, is obtained by still smaller and rapidly decreasing increment of heat, so that the greater the increase of volume the smaller will be the quantity of heat required for that latest volume, and although this is so contrary to the general laws of heat, and therefore so adverse to common apprehension, the diagram and table will not only show it to be a chemical fact, but will furnish the easy means for any competent person to verify the fact, which must be acknowledged to be of the first importance, for, were these facts understood, the present cost and weight of apparatus, and of fuel for the production of motive force, would both appear so extravagant, unscientific, and wasteful, as was the use of steam for motive force, before the days of Watt; yet, at that period, as at present, engineers conceited they fully understood the subject, "oft attempted—never reached."



Though it requires four times the force for double speed, it is evident were the present enormous rate of fuel cosumed in steamers judiciously applied, it would furnish abundant power for propelling them at much more than double speed, while the consumption of fuel for the voyage would, of course, be reduced to much less than one half.

A is a furnace and steam boiler suspended over it. B is a furnace and suspended steambeater for containing fluids, boiling at stationary temperatures, and hollow worm, connected by a pipe and stopcock with steam boiler A, and by a pipe with worm in C, a covered wood cistern, containing half a cubic foot of cold water and hollow worm therein.

When a volume of steam from A was passed through the hollow worm in heater B, (filled with water boiling at 212°), and into the hollow worm in C, until the condensed water therefrom exactly filled a glass measure containing nearly twenty ounces of water. The heat seperated from that definite volume of atmospheric steam heated the water in C 38°.

When similar volumes of steam from A were passed through the worm heater B, while the contained fluid was heated to the more elevated temperature in table, the excess of heat in each case above 38° showed the decreasing quantities of heat required for increasing the original volume of steam to the magnitude stated in table.

Temperature of poiler A.	Temperature of boiler B.	Volumes of steam and stame produced at those heats shown in former experiments.	Temperature of water in C, showing the quantity of heat in different volumes of equal tension.	Comparative quantity of heat required for equal volumes of steam of equal tension.
212 deg.	212 deg.	1	38 deg.	38 deg.
212 "	216 "	2	42 "	76 "
212 "	228 "	3	43 "	114 "
212 "	550 "	8	46 "	304 "

This increasing force obtained from decreasing quantities of heat applied to steam apart from water, not only proves the prodigous economy of this means of obtaining motive force, but points out the physical cause of the superlative explosive force, attendant on greatly and suddenly heated elastic fluids.

Many other and valuable advantages incidently occured during our experiments, which are omitted, because enough is given to stimulate the most torpid. We will therefore only add—

The advantages stated have been frequently verified by several of the most eminent engineers and learned and competent men of New York, and other places, by a condensing engine and apparatus so constructed, when actuated alternately by common steam, and by moderately heated steam, and so that the comparative quantities of heat and of water actually employed for motive force in each separate experiment, could be accurately measured as well as the power exerted by the engine.

NOTE.—With the article in the Scientific American two weeks ago, and the above, our readers will get a clear idea of the nature of Mr. Frost's discovery. The principle of it is to heat steam separated from water, whereby the results mentioned are to be obtained. We witnessed an experiment with the instrument described in our former number, but have not personally performed it for our own satisfaction—a thing which we always do, before stating our opinion. Those who desire to prove the correctness of Mr. Frost's experiments, can now do so for themselves—a course which we recommend every person to pursue in testing *new* discoveries.—[ED.

Agricultural Discovery.

Comstock's alleged discovery in Agriculture, which the N. Y. Legislature proposes to test, professes to be a botanical one, which is of such a nature, that it cannot be made the subject of a patent. It is claimed that it will keep in health and fertility that sickliest and most difficult of trees to manage in this country, the peach, that it will ensure the thriftiness of any plant to which it may be applied, and make the raising of good crops a far more certain thing than it now is.

The discovery consists in avoiding certain errors in cultivation which are most likely to be prejudicial in the best soils, and often produce disappointment to the farmer who has taken the most pains. It is our opinion however that there can be no certain nor infallible application of any one substance nor one process, that will suit every plant, and answer in every soil and climate—it is impossible.

A Great Suspension Bridge.

The cost of the great suspension bridge over the Dniper, at Kleff, in Russia, recently completed, was two millions of dollars. The model, and three thousand tons of iron used in the bridge, were furnished them from England. It took two years to complete the model and stand, of which the cost was thirty thousand dollars. The passage over which the bridge is thrown is half an English mile.

Failure of Iron Steamboats.

Four of the iron steamboats employed on the transportation line between this city and Philadelphia, have failed by corrosion, although protected by paint. They are now unsafe, and are to be planked by screwing planking to their iron hulls. The best substance to protect the iron is red lead. These vessels have only been in use five years, and the iron is so oxidized that it scales off to half the thickness of the plates.

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New Inventions.

New Window Fastener.

Mr. Levi Gilbert, of New Haven, Conn., has invented a very neat and certainly a most effectual window fastener, for which he has taken measures to secure a patent. The fastener is secured on the sash, in the inside, and has to be drawn out of the catch, when the window is elevated or lowered, but by a spring piston it fastens itself at the right point, without being touched, and answers all the purposes of a lock at the same time.

This puts us in mind of another excellent invention of Mr. Gilbert, viz., his Central Cavity Plate for inserting artificial teeth, on the principle of atmospheric pressure, for which he obtained letters patent. It is more than a year sinee we saw Mr. Gilbert's Plate, and we were convinced at once that it was the greatest invention for Dentists, and those who require new teeth inserted, that had ever been brought out. We are glad to know that the most eminent dentists in our country, now acknowledge the merits of this invention, and use it in their business.

New Lantern.

Mr. Wightman, whose advertisement will be found on another page, manufactures a most convenient and greatly improved lantern, far superior to the globe kind. It has four lights or glasses, it being square, either of which can be re-placed in a second by another, if broken, and it is adapted either for an oil lamp or candle. The lantern, with a glass oil lamp costs only $1, and a box to carry it is included in the bargain.

Farmers, yea, and every family in the country, should use this kind of lantern in preference to the common kind. Country merchants, we believe, would find a ready sale for them. Any letter addressed (*p. p.*) to Henry Wightman, care of Daniel Coply, New Lebanon, Columbia Co., N. Y., will meet with prompt attention.

Improvement in Hydrants.

Mr. J. D. Haines, of No. 557 Grand street, this city, has taken measures to secure a patent for an excellent improvement on Hydrants. He employs a lower piston valve, which is packed all around, and it moves in a close centre cylinder chamber, allowing the water to pass up through an outer circular chamber, and then up through the centre of the box. The piston is moved by a screw at the top, but it is drawn up, (the piston) and pushed down without turning round. The orifice for draining off the back-water is made from the centre piston chamber, so that the piston, being packed around, and raised from its seat, will always cover it, when the hydrant is open. It is exceedingly simple in its construction. There is great competition at present among our plumbers, to see which will invent the most perfect hydrant.

New Plan of Tin Roofing.

Messrs. E. T. Harris & G. M. Radley, of this city, have taken measures to secure a patent for a new plan of Tin Roofing, without soldering, whereby roofs can be laid down in one-fourth of the time now employed for that purpose, and they will be much stronger and more durable. By a peculiar arrangement, each sheet of tin is firmly secured to the flooring of the roof, without nails or solder, such roofing, therefore, must be more durable than that made of soldered joints.

How to Puzzel the Rogues.

In the genuine notes of the State Bank of Ohio there are as many human figures represented as the bill is worth dollars. If the counterfeiters wish to alter the small bills to large ones, as a $1 to $100, they would have to put in ninety-nine human figures—a thing not quite so easily done.

The Woodworth Patent.

A resolution has been presented to Congress by H. S. Conger, instructing the Committee on Patents to enquire into the propriety of repealing the act which was passed in 1845 extending the Woodworth Patent.

Novel Plan for Building Houses.

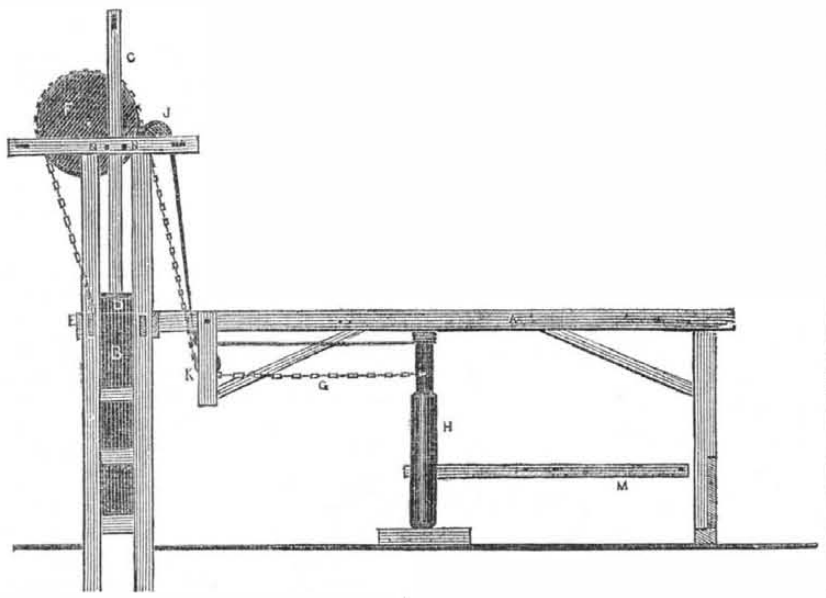
Mr. S. T. Fowler, of Harlem, near this city, has invented a new system of House Building, which is so simple that any man may put up his own house after viewing one built on Mr. Fowler's principle, while at the same time it can be built at less expense, in a shorter period, and is both stronger and more durable than wooden houses built in the common way. It is built of scantling, both frame and flooring,—no joints, sills, posts, nor common braces being used. It is an excellent invention for California emigrants, or for those who design to settle in our Western Territories. Measures have been taken to secure it by patent.

Strength of Gutta Percha Tubing.

A trial of the strength of gutta-percha tubing took place a few days ago at Stirling, in the presence of a committee of the town council, with a view to its applicability for extinguishing fires, flushing drains, &c. The tubing, which was one and a half inch bore, was attached to the water-pipes, and although the pressure of the water is perhaps the greatest in the kingdom, (being about 450 feet,) not the slightest effect could be perceived upon either the tubing or the joints, whilst the same pressure upon strong leather hose scattered the rivets in all directions.—[London Times.

BROWN'S ECCENTRIC PROGRESSIVE POWER PRESS.

Figure 1.



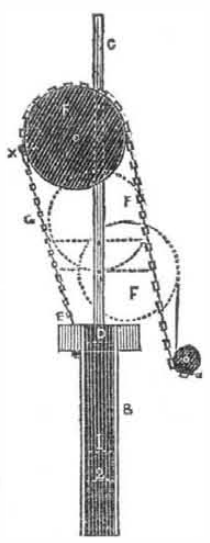
This press is the invention of Mr. A. D. Brown, of Clinton, Geo., and for which a patent was granted a short time ago. It is well calculated for cotton, hay, hemp, tobacco, &c., by horse power; and by using a wheel and pinion may be made very compact, and answer admirably for pressing any other article where great pressure is required in a small space.

Figure 1 is a side and longitudinal elevation. Figure 2 is a side geometrical section, showing the eccentric pulley in three positions, together with the pressing block and the bale box.

The same letters refer to like parts in all the figures. A is the frame; B the bale box, wherein the cotton is compressed—it is made the usual way they are in cotton screws. C is the stock of the follower or pressure block; D is the pressure block in the bale box. The stock, C, is composed of two upright pieces (one seen) connected to the block, D, by screws, or otherwise, and united above by a tie block.—This follower slides up and down between guides or cheeks, N N, on each side, which are made in any manner to guide the follower in a perpendicular direction to the bale box. The follower and stock are raised up when the bale is pressed, by a rope or chain, which is made fast to the frame, passing under the eccentric pulley, F, over the sheave, J, and under the small top sheave, thence to the capstan, H, where it winds round the reverse way from the chain, G. Between the sides of the stock, C, there is placed a pulley, F, over which passes the chain, G; this chain is secured at one end to the staple, E, in one of the transverse beams of the frame A. The chain, G, extends from the staple to the capstan, H, passing over the eccentric pulley, F, and under the sheave, K, as represented in figure 1. The capstan is operated by power applied to the lever, M, which, by winding the chain, G, on the capstan presses, or draws down the stock, C, (at the same time unwinding the chain or rope, A) and the follower, D, upon the cotton in the box. The pulley, F, is placed in the stock, C, on an eccentric or nearer the periphery than the centre. Its axle passes through the stock, and through the pulley as represented.

The space through which the follower, D, moves in a given time is indicated by the circles in fig. 2; it is intended that the pulley, F, should make only one half of a revolution in pressing the bale of cottons, &c. In fig. 1 is indicated in the position of the pulley, F, at the period when the act of compression is about to take place. The first dotted lines, F, (fig. 2) indicates the position of the pulley when it has made one quarter of a revolution during which time the follower descends through the space from D to 1 and 2, indicates the position of the pulley, F, after it has made the second quarter of a revolution, during which period, the follower only descends from 1 to 2. Having finished the bale you turn your mule or horse, and drive in the opposite direction you raise out the follower by winding the rope on the capstan and unwinding the chain, G. The follower is easily pushed from over the bale box, swinging on the axle, so that the whole top of the box is open to receive the cotton. The chain, G, as seen from E to X, fig. 2, is four times as large as from thence to the capstan. At X there is a strong staple driven into the pulley, F, over the last link of the large chain to prevent slipping.

Fig. 2.



Mr. Brown will sell the Right for the above Press for any State or for counties in any State except Georgia where he intends selling single Rights and furnishing materials to all who may desire to purchase. Any communications (*p. p.*) will be punctually attended to.

Planters will immediately perceive that this press is very simple. It is a very ingenious combination of the lever power of the capstan and the revolving eccentric pulley, whereby greater speed and small power is used at the commencement, and less speed and greater power, as the compression proceeds. It is not theoretically but practically good, as the following extract from the Georgia Journal and Messenger, Macon, will show:—

We last Summer noticed an important invention by Mr. A. D. Brown of Clinton. It is an improved Cotton Press, of great strength and simplicity of construction, and of much greater power than those now in use.

Mr. B. has completed one of these Presses upon a large scale, and has fully tested its superiority.

The Steamboat Challenge.

Mr. Peter Yates has sent us a letter in answer to the letters of challenge between himself and Mr. Grennell. Those letters were sent us by Mr. G., and the publication was assumed by us, as matter of interest to our readers. The challenge of the $30,000 was the greatest, in our opinion, ever brought before the Mechanical World. We have not space for Mr. Yates' long letter, but we will give the substance of it fairly.

He says, Mr. Grennell, instead of accepting his challenge, becomes a challenger in turn. He does not consider himself to have backed out, as his challenge was as fair as Mr. Grennell's. He says, "I will bet him, or any other person, both boats of 6 or 8 horse power, against $2,000, upon the gain of one minute in 8, and use with the pulley one-quarter less steam. If Mr. Grennell wins, I will find him a purchaser at $2,000, and if he loses the first bet, I will not touch the money, if six competent and disinterested engineers, upon oath, say the pulley engine will not maintain its high advantages."

This is fair, and Mr. Grennell's challenge is equally fair. Every man has a right to his own opinion; Mr. Yates thinks a safe boat, to go to Mobile could not be built for $30,000, but a steamer 50 feet long, has crossed the Atlantic.

Mr. Yates says "how long must nearly every inventor of a great improvement, continue to be regarded as a fool or impostor, by his contemporaries, and be compelled to tempt, by a large bonus, those most directly interested, before they will condescend to look at it, and be treated more like a criminal to be punished than a benefactor to be rewarded?"

We say, when an inventor finds a great many sincerely differing from him about his invention, he should suspect that they have as good reasons as he has, for their opinions—This is even-handed justice. Mr. Yates (and we say it in all friendship) has not pursued a right course—he has, in every case, been the attacking party, and invited controversy. He did not do right—he should first have given a faithful description of his invention, and not fought, like a Junius.

We are in principle opposed to betting. The only way to test the superiority of Mr. Yates' invention, is to put it on one of our North River boats—its superiority of speed and general economy will thus be fairly submitted to a competent trial.

Remmington's Bridge.

Several persons have written us for information concerning the residence of Mr. Remmington. We have received information that he now resides in Montgomery, Ala., and is engaged in constructing a bridge there of 400 feet span. Those wishing information can address Mr. R., or J. Beattie, Jr., at Montgomery, *post paid.*

A New Building Material.

We learn says the Germantown Telegraph, that there has been introduced at Pottsville, a new building material—a kind of large brick, 15 by 30 inches in dimensions, of a handsome buff color, which can be made into any shape desired. The Miners' Journal says they can be worked up into beautiful block fronts for buildings, or used for basements, or any other ornamental work about buildings.

The grizzly bears near the mines in California are so tough you cannot shoot them with a rifle, and they sometimes eat a gold hunter.—Those who dig for gold ought to understand mineralogy. The building of a hut in the mining district gives a claim to 60 feet of land in every direction around it.

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Scientific American

NEW YORK, MARCH 9, 1850.

World's Convention of Industry in America.

In 1851 a grand exhibition of the manufactures and products of all nations, is to be held in London. A building is to be erected that will cost half a million of dollars, and rich prizes are to be awarded. Prince Albert is to be the Grand Patron, and we confess it gives us more pleasure to hear of a Prince reviewing the products of Industry, than reviewing an army of a hundred thousand men. It would be a happy thing for the world, if potentates and rulers encourage the arts of industry and peace, rather than those of aggression and war. Although the government of Great Britain is essentially aristocratic, it wisely pursues the policy of encouraging genius and improvements in the arts. It was not British Nobility, it was not British valor, it was not Britain's naval superiority, that vanquished Napoleon. It was British gold, the fruit of her people's genius and industry, which clothed, armed, fed and marshalled the hosts of all the European powers, from the Cossack of the Don to the German of the Rhine, in one array against the Great Captain, and chained him at last to a lonely rock in the Atlantic. Well does Britain, as a government, appreciate the policy of encouraging industrial pursuits and improvements in the arts, and the great exhibition to be opened next year, exhibits her sagacity, and we admire it. We do not say that her aristocracy have philanthropic objects in view, we do not speak of that, but the policy merely.

And why cannot America have a World's Industrial Exhibition also. Such an exhibition is highly democratic in its nature; its spirit is that of freedom, for no fictitious aristocracy is represented—the only aristocracy is that of genius and skill. Our nation is now a great empire, and we possess abundant means to make such an exhibition as great, as noble and grand, as any other nation whatever.

It is reported that Congress intends to appropriate $100,000 of the $170,000 now in the Patent Office Treasury, to complete the new Edifice. We hope that the motion to appropriate this amount, will be defeated, and the amount voted out of the National Treasury, for the new office is to be partly used for National as well as Patent business, and will embrace the Agricultural Department. It would be better thus to apply $100,000 of the National funds, and save it out of *ex parte* appropriations, or for building useless vessels, leaving them to rot on the stocks, until they are fit only to be taken down and sold for *punk*. The new Patent Office, so far as it has progressed, has cost the nation nothing—$50,000 was paid out of the invention fund. The Report of the Commissioner recommends $100,000 to be invested as permanent stock, and the interest of that devoted at stated periods, as awards for important inventions and discoveries. We believe it would be a good plan to apply such accumulated funds in the way recommended, and to award the prizes at our Great Exhibition of manufactures and industrial products. For example, let us have such a World's Exhibition every seven years, and at that period, let the Patent Office rewards be distributed for the new discoveries (given out seven years before) and let the other rewards be made up by national subscriptions, or some other plan, which may yet be suggested. The subsequent seven years' prizes of the Patent Office, for new inventions, should at that time be given out, and in this way there would be aroused to energy and emulation, an amount of inventive genius that would place our nation at once far in advance of every other, in physical discovery. Such an exhibition might take place even oftener than seven years, —and truly might we say, such exhibitions would be the Olympian Games revived with more than ancient Grecian glory.

Hon. Wm. H. Seward has our thanks for Congressional documents. Shall be pleased to receive more.

Invention, Civilization and Pauperism.

Wise, honest, and intelligent authors have always paid the hig hest tributes of respect to inventors, and have not failed to acknowledge the benefits which their works have conferred upon all nations and all classes. It is the divine spirit of invention which elevates man above the brutes around him, and leads him in the "image of his Maker" to be a creator, in one respect, himself—a co-worker with the Great Architect of the Universe. All animals follow after the laws of their instinct, from generation to generation, without the shadow of a deviation. But who could discover the savage Saxon of the fourth century, in his civilized descendant of the nineteenth? But it may be asked, "Does civilization consist in a high cultivation of the inventive faculties, and does it exist only in those nations where the arts and sciences are farthest advanced? Can a high advancement in the arts, and a proud name for science in any nation, cover up the sins of defrauding the poor; or give a good name for civilization, if misery sits like a canker knawing at the hearts and hopes of thousands of her people?" We answer, No. A nation may develope the highest qualities of inventive genius, and yet be morally debased; while another nation may exhibit but a moderate amount of learning and genius, and yet occupy a high moral position, and exhibit the great civil qualities. The former may produce machines of the most cunning workmanship, and make every article to fill the lust of the eye, and produce enough to clothe ane feed the world, and yet her cities may be filled with starving people. The latter on the other hand may have a happy, well fed and well-clothed people, while her products may no more compare with the first, in amount, than the waters of the Mediterranean with those of the Pacific. But although this is true, surely no one can doubt, that if the highest moral qualities were united with the highest inventive qualities in any nation or people, that nation or that people would stand on the highest round of the ladder of civilization. Genius was given to man as a social being, not for the benefit of one, but all—"the greatest good to the greatest number." And when genius is devoted to the purposes of plunder or ambition, to benefit one at the expense of another, the evil consists in the *abuse* of the greatest natural quality which God hath bestowed upon man, to make our race better and more happy.

We have been induced to make these remark, from reading an article in the last Edinburgh Review, on Civilization. That article lifts the veil and exposes to our view the leprosy of Britannia's Colonization. Her warehouses are filled with merchandise, and in the vaults of her great Bank there are more than 130 tons of gold. Her grainaries are groaning with food, and her factories and workshops surpass all others in the world. But alas! in the midst of all her abundance, and all her civilization, her pauperism reminds us of that wall of human skulls, which a cruel oriental monarch is said to have built around his palace.

"Pauperism," says the Review, "has for a long series of years engrossed a large share of public attention: but, frequently as it has been the theme of the philosopher and the economist, no efficient remedy has as yet been devised We can travel at the rate of fifty miles an hour, and send intelligence a thousand miles in a minute; we have not been able, however, to outstrip pauperism. Wealth has accumulated; social improvements have been carried out; and political changes have taken place, only less than revolution; but our national Genius yet stands rebuked before the one gaunt phantom which meets it on every path of triumph. A few years ago pauperism threatened to swallow up all property: the Poor-law was amended, and the disease in some measure checked; but pauperism has again for several years been on the increase.

A low standard of life must obtain, equally where earnings are insufficient and where labor is excessive. It is generally thought the mark of a low state of civilization when women are obliged to go forth in search of employment. That cannot then be a very exalted state in which, not only mothers, whose sphere of duty is at the hearth and by the cradle, but young children, whose place should be at the school or on the play-ground, are toiling in factories; while the mere infants are cared for by strangers."

It is well known that the greatest amount of misery exists in the English manufacturing districts, and this fact has led many to lay the blame to improvements in machinery, which they say, "has destroyed the occupations of the poor." We regret that there is the least room for the assertion, which some honestly make, "inventions have only made the rich richer, and the poor poorer." But inventors and inventions are not to blame for such evils; the spirit of mammon is at the root of them, and it is our duty to place the blame on the truly guilty. Surely it must be evident to every one, on a little reflection, that the greater the amount of necessaries and comforts of life which are produced, whether by machinery or otherwise, there should be a greater amount for all.

Surely, then, the evil is to be attributed to some other thing than inventions in machinery —destroying the labor of the poor. The world does not yet fully understand what benefits have been conferred upon all nations by inventors.

Future Discoveries.--What Science has yet to Accomplish.

"We have a confident hope—or rather a firm belief,—that, long before the coal-fields of Great Britain are exhausted, discoveries will be made, both of new Motive Powers and new sources of Heat or Caloric, which will make all future generations independent of these clumsy and dingy resources. Motive power, we think, will probably be supplied, either directly by such omnipresent and inexhaustible elements as Electricity and Galvanism, or by the employment of some gas far more elastic than steam, and capable of being called into action, and again condensed, by slight mechanical impulses, or by changes of temperate incalculably less than are now necessary for the management of that comparatively intractable substance. But, even if we should still require to use steam, we are persuaded that means will be devised for its generation,—or rather for the production or evolution of Heat, for that and all other purposes—far less operose, indirect and precarious, than the combustion of coal. This may probably be effected, without any process of combustion at all, either by the great agents of Galvanism or Electricity already referred to; or by the friction, hammering, or rolling of solid and practically indestructible bodies; or by the forcible compression of common air, or of other elastic fluids; or by the chemical combination of different substances; while, if combustion must still be resorted to, might it not be constantly maintained without the tremendous expense of the working and transportation of fuel, by merely contriving a method of burning the inexhaustible, omnipresent, and eternally reproduced element of hydrogen, as it exists in the great ocean, and in all our lakes, rivers, fountains, and tanks and tubs of rain water, with the equally omnipresent, inexhaustible, and constantly reproduced oxygen of the circumambient atmosphere?

These, we are aware, may now strike many (perhaps most) people as mere Utopian or other fancies: and undoubtedly they are, as yet, but vague and general suggestions. But when we consider how much wilder and more audacious (as less warranted by any analogous experience) similar anticipations of Electric Telegraphs, Photographic painting, or Railway locomotives must have appeared but fifty years ago, we really cannot consent to put them into such a category; but, on the contrary, confess to a certain feeling, both of pride and of confidence, in thus recording what we cannot but consider as a truly Prophetic, though it may be but a dim and somewhat indistinct vision of a good and a glory to come."—Edinburgh Review.

[There can be no doubt but the future will bring to light many secrets that are now wrapt up in Nature's Secret Archives. We have faith to believe that the time is fast approaching when our knowledge shall be greatly increased; but in order to avoid expense, useless experiments, and consequently the retarding of important discoveries, it is the duty of Scientific men to point out the fields of observation where to make the experiments, where there is hope of success, and where there is none—the fields that have been explored already, and those that are comparatively unknown.

The above article of the Review expresses the same views which we have, respecting the future discovery of some gas to supersede the use of steam, but from the very nature of galvanism and electricity, we can see no hopes of their superseding steam. We have also some hopes that steam may yet be produced, at less expense and by less cumbersome means than the present modes employed. Some better plans of developing heat, than by the combustion of coal under huge boilers, may yet be discovered. But this never can be done by friction, hammering or rolling (hammering and rolling is friction), for it is certainly evident to every scientific man that the heat developed by a bushel of coals must be equal to the heat produced by friction during a certain time, for friction is a mechanical operation—combustion a chemical one. The compression of air or other elastic fluids never can supersede the combustion of coal, to develope heat to raise steam. Why? Because that, too, is friction, and must be done by mechanical pressure, and surely the combustion of a bushel of coals, will generate as much mechanical power as that mechanical power can generate heat by compression-friction, during the combustion of the coal. This is logic, and experiments have already been made to corroborate this inductive reasoning. The allusion to the combustion of hydrogen—one of the elements of water, is a happy one. In that field there is much room for experiment, with the hopes of a rich reward.

To Our Half-Yearly Subscribers.

Our next number will complete the first half of this volume. As we have a great number of subscribers who pay up their subscriptions every six months, this notice will no doubt put them in remembrance of forwarding their subscriptions next week. This is also a good time for others to subscribe, and as there are a great many places where we have but single subscribers, it would be well for them to try (each) to get one or more to send along at the same time. Our single wrappers are made up in much smaller bulk than the wrappers for two or more subscribers, and there is therefore less danger of Post Office miscarriage to places where we have a number, than where we have only single subscribers.

It is always a delicate subject to talk of ourselves, in fact we do not like to do it: it is something a little out of our line, although it is sometimes necessary; but our words will be few. The Scientific American is now in its fifth volume, and has a respectable circulation of 14,000—no paper of the same nature has, or ever had, the same success. We are grateful for this, and will more than ever strive to maintain the good name we now enjoy. To our subscribers, above any other we believe, we are indebted for our extensive circulation: you, gentlemen, have enabled us to add improvement after improvement to our paper, and by your help, we will continue "to go on from strength to strength." Those who endeavor to extend the circulation of the Scientific American, certainly labor to extend a knowledge of the arts and sciences, and every person knows that no man can justly claim to be intelligent, at the present day, who is ignorant of what is going on in the progress of science and art. It has been told to us a great number of times, by old subscribers that they have particularly observed a more elevated tone of conversation, and a far greater amount of the right kind of intelligence, in those young and old mechanics, in certain shops, who took our paper, in comparison with those who did not. This fact should not be forgotten by men who are the heads of families.

We endeavor to give as much interesting, useful and correct matter, in as condensed a form as possible. We no doubt make many slips of the pen, we do not claim to be perfect, we do as well as we can, and always try to "push along improving."

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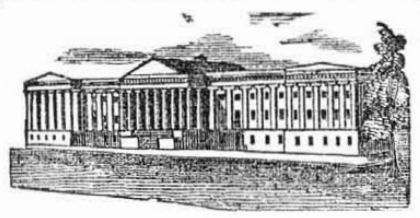

LIST OF PATENTS CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending March 2, 1850.

To George Burgess, of New York, N. Y., for improvement in machines for cutting cap-fronts.

I do not claim any part used herein, separately; but I claim the construction and application of the frame, with the blades (two) and guide pins (taking holes in the bed, to work in either direction from the centre, all these parts being constructed and operating substantially as described and shown; and I claim, in combination with the foregoing, the bed, fitted with supporting guide rollers, (two) and adjusting bar, with rollers moving over the bar, and taking the indentations to adjust the position of the material, over the cutter blades, (two), the whole constructed and operating substantially as described and shown.

To C. F. Brown, of Baltimore, Md., for improvement in gas-generating apparatus.

I claim the supply tube combined with the vaporizing cup, as herein set forth, for the double purpose of supplying liquid for making gas, and for vaporizing the same before it comes in contact with the decomposing surfaces in the retorts, for the purposes set forth. I also claim the compound retort, constructed and arranged as above specified.

To E. B. Bowditch, of New Haven, Conn., for improvement in Sofa Bedsteads.

I claim the ordinary seat of a sofa, or other suitable article of furniture, so arranged as to revolve on a centre at each end, in a frame so constructed as to turn over and bring the top or stuffed side of the seat,—by revolving the same—on a level with another seat or bed, placed under the ordinary seat.

I also claim the use of the stuffed ends forming the support for the top seat when turned over and used as a bed.

To J. F. Foster, of Bridgeport, Conn., for improvement in connecting hubs with axles.

What I claim is enclosing the spring collars that fit and run in the groove of the axle, within a box at the inner end of the hub, substantially as herein described, when this is combined with the ring fitting to and turning on the outer periphery of the box and acting on the ends of the spring collars for the purpose of drawing them out of the groove when it is desired to take off the hub, substantially as described.

To I. D. Garlick, of Lyons, N. Y., for improvement in Churn-dashers.

I claim hinging the series of beaters to the dasher rod in such a manner that their faces will be thrown into inclined positions by the upward movement of the dasher, and into horizontal positions by the downward movement thereof; when the said vibrating beaters are combined and act in concert with the series of vertical faced beaters or wings, (upon the same beater rod) substantially as herein set forth.

To Wm. Hamilton, of Philadelphia Co., Pa., for improvement in Iron-railings.

What I claim is constructing the palings or upright rails as herein described, with holes in them, by means of which they slide freely on the horizontal bars, and with a cavity for containing lead or other proper metal surrounding said bar, for the purpose of allowing the palings to be placed and fastened at any desired distance from each other, substantially in the manner and for the purpose set forth, by means of which I form a cheap and perfect railing of different lengths with the same number of palings, and firmly secure the rails in place.

To Humphrey Kempton, of Fairhaven, Conn., for improvement in Clothes Frames.

What I claim is the combination of the jointed arm, bars and rods, with the collars, (five) and the mast, by means of the stay cords and the cords L L and M M, substantially in the manner and for the purpose herein set forth.

To Ephraim Larrabee, of Baltimore, Md., for improvement in Refrigerators.

I claim the inclosing water space for cooling the preserving chamber, in combination with the pipe for discharging the waste water, substantially in the manner herein represented and described.

To S. T. McDougall, of New York, N. Y., for improvement in Scale-beams.

I claim the combination of two or more scale beams (having fixed and independent points of suspension) with each other at the points, where the weight is usually attached, substantially in the manner and for the purpose herein set forth.

To J. G. Perry, of South Kingston, R. I., for improvement in meat-cutting apparatus.

I claim the studs placed on the bar, in combination with the openings to direct the minced meat &c. into the said openings, that is directing the said minced matters into either one of the openings every revolution of the block to prevent the minced meat &c., from undergoing re-mincing as set forth.

To A. M. Poisat & D. C. Knab, of Paris, France for improvement in distilling oleaginous matter.

What we claim is facilitating and improving the distillation of fatty and oleaginous substance by the introduction of steam at or near the bottom of the boiler containing such substance, substantially as described, in combination with the application of external heat, as described.

And we also claim the process substantially as described of distilling fatty and oleaginous substance by means of a bath of melted lead or any alloy which will melt at the same temperature, substantially as and for the purpose described,—whereby we are enabled to effect the distillation at the lowest possible temperature and have a practical indication of such temperature as described.

To J. C. Parry, of Pittsburgh, Pa., for method of giving a rotary motion to metal in casting chilled rolls.

While I disclaim any exclusive right to the use of the cicular motion in casting chilled rolls, in as much as that has been for many years known and used, I claim the use of the dam attached to the rod placed inside the mould in chilled rollers and similar castings, as herein before described, for the purpose of producing a circular motion in the melted metal.

To Jesse Reed, of Marshfield, Mass., for Parallelogram Steering Apparatus.

I claim a steering apparatus in which the operating screw and nut are connected to, and turn the rudder post by means of a series of parallel arms and cross-bars, arranged and combined together in the form of a parallelogram, and jointed together, so as to turn freely, substantially as herein above described.

To Peter Sweeney, of Buffalo, N. Y., for improvement in Stoves.

I claim the arrangement of the flues (three) in combination with the funnel shaped air pipe, in such manner that a union will be formed betwen the oxygen of the atmosphere and the hydrogen of the smoke at the lower extremity of the flue where the heat, caused by the action of the fire on the partition between the flue W, and the flue C, and radiating from it will produce combustion of those gases as they ascend through the flue.

To Zuriel Swope, of Lancaster, Pa., for improved Hydrolator.

What I claim is the combining with a Hydrolater [for first elevating water, or other substance, and then conveying the same to a distance] a double acting drum, constructed substantially as herein described in such a manner that the vertical raising and lowering movement of the bucket, or its equivalent, may be at a slow movement and an accelerated leverage, and the horizontal or inclined conveying movement may be at an accelerated speed and a diminished leverage.

To N. Waterman, of Suffolk Co., Mass for improvement in apparatus for making Coffee.

The strainer and its spring contrivance, in their application to the coffee receptacle or box, constitute what I have termed the spring expander, and in the employment of the same I do not intend to confine my invention to the precise form or arrangement of parts as exhibited in the drawings, as I am aware that the same may be varied in various ways, while the principle of the invention is still maintained. For instance the spring may be placed between the tops of the two boxes F, and H, instead of on the outside of the top of the box. The spring expander may be disposed within the box F, but I do not consider such change as presenting the advantages of construction, operations and repair, as are presented by the mode of making the improved cafetiere.

What therefore I claim is the spring expander in combination with the coffee box or receptacle, the same being for the object or purpose, substantially, as specified.

To C. Whipple, of Providence, R. I., (Assignor to J. Carpenter, of Hartford, Conn.,) for improvements in machinery for spinning yarn and making rope.

I claim, first, giving to the strand during the operation of spinning a double twist to each revolution of the wings or flyers in the manner described herein, the same being applicable to, and claimed in the spinning of yarns from any fibrous material, and also in laying the strand into rope, as set forth.

Second, I claim the combination of the weights (two), with bobbin stands for the purpose of preventing those from being carried around with the rings or flyers, the whole being arranged and operated substantially in the manner and for the purpose herein described.

RE-ISSUES.

To C. A. Kiechler, of Stockholm, Sweden, for improvement in Distilling Apparatus. Patented July 10, 1849. Re-issued Feb. 26, 1850.

What I claim is the particular construction and arrangement of the rectifier as herein set forth, that is to say; first, constructing the rectifying chambers and water cases with charging holes substantially as herein set forth, by which means the various substances employed to rectify or to flavor the spirit can be easily charged into or discharged from any one chamber without dismounting the apparatus or removing the substance in the other chambers.

Second the particular form of the rectifying chambers which are made of the frustra of two cones united at their bases, the upper forming the condensing surface of the aqueous vapor.

To Walter Hunt, of New York, N. Y., (Assignor to Wm. R. Palmer,) for method of attaching a ball to a cartridge. Patented August 10, 1848. Re-issued Feb. 26, 1850.

I claim the method substantially as herein described, of attaching or joining to a ball a cartridge made of wood or other equivalent material, in the manner substantially as herein described.

To Walter Hunt, of New York, N. Y., (Assignor to G. A. Arrowsmith,) for Loaded Ball. Patented August 10, 1848. Re-issued Feb. 26, 1850.

What I claim is making metalic balls for fire arms with the rear part thereof cylindrical and a cavity in the said cylindrical part of sufficient capacity to receive the entire charge of gun powder, substantially as herein described, when the said charge is retained in the ball by a cap or the equivalent thereof, having a central hole through which the charge can be inflamed, substantially as described.

DESIGNS.

To L. S. Bacon, of Rochester, N. Y., for design for Stoves.

To Wm. L. Sanderson, of Troy, N. Y., for design for Stoves.

Valentines.

The custom of sending Valentines has become the means of offering the grossest insult, anonymously; so much so as to lead many of our more refined people to refuse to receive them from the postman, or bearer, no matter how costly the missive may be.—[Exchange.

[The Valentine venders had but a sorry business of it this year. We are glad of this: the system is contemptibly foolish, and there are a few other systems just as bad amongst us. We hope that our *refined people* will become sensible people, for as a general thing, those that are termed refined have a great number of foolish notions.

The last voyage of the America to Boston was the most stormy ever experienced by Capt. Harrison. all the floats but three on the larboard wheel were carried away, and half on the starboard wheel. The steamer left Liverpool in a heavy gale, and was 17 hours to Hoyhead, which usaully takes but 7, and not being able to discharge the Liverpool pilot brought him to this port.

New Steamships.

The Atlantic—American, Capt. West, the first of Collin's great steamships, belonging to the United States Mail line, between New York and Liverpool, is nearly completed, and will make her trial trip before many days. She leaves here for Liverpool on the 27th of April. The Pacific, Capt. Nye, follows the Atlantic, and leaves this port for Liverpool May 11th.—The other vessels of this line are the Arctic, Capt. Luce, the Baltic, Capt. Comstock, and the Asiatic, Capt. Grafton. The two last named vessels are not yet launched, though they are rapidly being constructed. The two first steamers of Mr. Collins' line are acknowledged to surpass in magnitude and beauty, any steam vessels ever built.

The Asia—Cunard.—This vessel has been launched in Scotland, at the ship-yard of Robt. Steel, Greenock. She is 265 in length, 37 in bredth, depth of hold 27 feet, and measures 2,226 tons, N. M.; being 400 tons larger than those last built for her owners. She is 17 feet longer, and 4 wider. In her construction every application of skill and science has been combined that could contribute to her strength and speed. She is the property of the British and North American Steam Navigation Co., and is to be commanded by Capt. Judkins, so well known and popular in the trade. She is now at Glasgow getting her engines; Robt. Napier, Esq., is the engineer.

The City of Glasgow—New Line.—The City of Glasgow is the first of the New Line of Steamers to run between New York and Glasgow, Scotland. She will leave Glasgow for New York, on her first voyage, on the 10th of April next. The City of Glasgow is an iron vessel, of 1600 tons burthen, with two engines of 350 horse power. She is to be propelled by a screw 13 feet in diameter. The machinery will occupy little space, and be placed so far below, as to allow the decks a clean sweep.—She is a three decker. The total length of the main deck is 237 feet, breadth 34 feet. Her accommodations for passengers of each class are perfect, having rooms for 52 cabin passengers, and 85 second class.

She will be manned by about 70 men, officers included and will be able to carry a large cargo of goods. Her hull is divided into six air-tight compartments, by which she would be kept afloat though a dozen holes were knocked in her bottom. Every precaution which ingenuity can suggest towards the safety and comfort of an ocean vessel, has been carried out on the "City of Glasgow." She is barque rigged, will carry an enormous press of canvass, and as she is built with a view to rapid sailing, she may be expected to make very quick passages. She will have ample room for 1200 tons of goods. Todd & McGregor, we believe are the engineers.

New Steamer from Hamburg.—Another new Line of Steamers to run between New York and Hamburg, is also to commence runing very soon. The first steamer of this line, the Helena Sloman, Capt. Paulsen, leaves Hamburg for this city on the 9th of April.—We shall see her probably April 26th. She is built of iron in the strongest manner possible, and is propelled by a screw. Her accommodations for passengers are superb. Messrs. Schmidt & Balchen are the Agents in this city.

A Petrified Body.

A subject which had been buired five or six years, was taken up a few days since, says the Houston (Miss.) Republican, of the 26 ult., for the purpose of removing to a different location, and found it in a high state of petrifaction. It required the strenght of six men to raise the coffin from the vault, this caused them to open it, to discover the cause of the weight; when, to their surprise they found it to contain a form of stone. With the exception of the fingers, part of one of the feet, and a small spot under the position of the hands, which had decayed before petrifaction had taken place the body was apparently a solid stone.

Another Bridge at Wheeling, not over the Ohio river, but across the Wheeling creek, is to be constructed at a cost of $3,867. It is to be a wire suspension bridge, with four cables, two towers, 35 feet above the bed of the stream and to be 318 feet long.

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TO CORRESPONDENTS.

"G. A. S., of Ind."—You could get a three horse power engine and boiler for about $300. The Jury on the trial of Parker vs. Adkins, are surely the best judges. Parker does not limit his claims to what you state. He claims letting on the water by a whirling motion, and using more than one wheel on the shaft. No claim can be instituted for a principle, but the means of carrying out a principle. Owing to the great number of patents on Re-action Water Wheels, it is morally impossible for us to tell the distinguishing features of each. We think as you do about the over-shot wheels.

"L. C., of Va."—We cannot form a proper idea of your invention from the indefinite de scription given. If you will furnish a drawing and description of it, we shall take pleasure in examining it.

"J. F. L., of Ohio."—Accept our thanks for your kind testimonial, we are glad to know that you are pleased with the Sci. Am. $1 received.

"E. F. W., of Conn."—Your application will be taken up in its order, when that time will be no one can tell. You had better wait for the other matter until the Patent is issued, we will do as you think best.

"B. A., of Mass."—We shall attend to your caveat as early as early as possible.

"J. McC., of Ky."—We think the telescope referred to has been sold, you could ascertain by dropping him a line; he resides some distance from this office. You can obtain one from Benj. Pike & Son, of this city. The other article is sold.

"B. S., of Me."—We do not see what advantage would be gained by your improvement because we do not see any evils to be overcome. We would advise you not to spend money on the project.

"J. P. N., of Ohio."—We think that your improvement is a good one, but cannot advise as to a patent. We feel doubtful about it, because we were informed that a gentleman in Providedce, R, I., had an improved method of making the screws, and from the little light we received about it, the same principle as that invented by you was embraced in it.

"E. C. J., of Mass."—We have examined the drawings of your machine for washing stuffed clothes: we do not think a patent could be obtained for it. Cylinders having beaters arranged on their peripheries have long been used for washing clothes and other purposes, and the mere application of a fan for the purposes described would not constitute the subject of a patent.

"S. McE., of Pa."—Your drawings have been examined, but we do not think the plan to be new. We think the same principle is illustrated and described in Ree's Edcyclopedia of Arts and Sciences.

"W. H., of Ill."—The construction of your Electro-Magnetic Engine differs from any other we have seen, but we cannot express an opinion concerning its practicability. You had better make further experiments with a view of testing its usefulness. Vol. 4, bound costs $2,75. We have no papers containing such descriptions as you want.

"T.E., of Ct."—You cannot expect every one to think about the matter as you do. There exists a great diversity in the human character,—

"Virtuous and vicious every man must be,"
Few in the extreme, but all in the degree."

"T. C."—Yours on the Prevention of Explosions will appear next week.

"K. G., of Ohio."—Your plan of the rake is a good one, and appears to be patentable.

"H. J. Van L., of N. Y."—Machines exactly like yours have been used for mincing both apples and other fruits and meats. It could not, in our opinion, be patented.

"C. R., of Wis."—Your invention is a good one, but various kinds of springs have been used on cables. We are doubtful if a patent can be secured.

"E. A. D., of N. Y."—We approve of your ideas in regard to the plan for shaving the bark, but no patent could be obtained on a machine such as you describe, it would infringe the Woodworth Planing Machine, although used for a different purpose.

No honest man will wilfully infringe another's rights, and we regret to hear of your misfortune. The only redress now lies in the law, a very disagreeable ustomer to engage with. We never undertake cases of this kind.

"M. L.J., of Geo."—For your one saw, you might get an engine and boiler to answer very well, all plain, for $800, perhaps less, but we advise the use of an extra power in the engine, so as to work all with ease. The power required is five horse, but we advise the purchase of a 10 or 8 horse engine and boiler. The best way would be to advertise for a good second-hand engine and boiler, stating what it is wanted to do. You will be sure to find what you want.

"B., of St. Louis."—Yours will appear in two weeks. We have so many communications on hand, that a number of them must be laid aside for want of room. Those which we believe will be interesting to our readers we will publish in due order. We receive quite a number of communications that are too long for our columns, many of them which might be condensed by their authors, into one half the space, and read all the better for it. We like plain, brief and logical articles.

"S. B., of N. C."—A Caveat will protect you for one year. It is the best thing you can do. It requires a minute description.

"N. R. M., of N. Y."—We will give the hydraulic ram attention. We are obliged to you for your favors. We think that the horse-nail cutting *idea* is new and a good one. It would have all to be fully matured before presented for a patent.

"A. O. D., of Mass."—We will have to publish a cut of the way to discover the power of water under different heads, so as to make it plain. This we will do in some future number.

"J. W., of Pa"—See Ure's Dictionary, page 256,—it describes the whole process. The chemists to whom you allude must be behind the age. We know of none who make it.

"D. McClintock, Ireland."—Money paid into the hands of Messrs. Barlow & Payne, 89 Chancery Lane, London, is always sure of reaching us safe. These gentlemen act as our agents for Great Britain.

Our correspondence has been to large for the last few weeks that we have not been able to answer all yet.

H. & R., of N. Y.; A.L.M., of Mass.; B. S., of N. Y.; T. F. Van K., of N. Y.; T. F., of N. Y.; W. T. C., of Ala.; H. D. T., of N. H.: C. N. P., of Ill., and O. E. & W.H., of Mass.—Your specifications and drawings have been forwarded to the Patent Office since our last issue.

Money received on account of Patent Office business, since Feb. 27, 1850:—

O. E., of Mass, $10; H. S., of Mass, $45; R. S. S., of N. Y., $30; A. B. W., of Mass., $30; B. S., of N. Y., $25; A. W. P., of Ohio, $50; C., B., of R. I., $30; W. & P., of Pa., $35; U. W., of N. Y., $40; T. F. Van R., of N. Y., $20; W. T. C., of Ala., $30; W. H., of Mass., $20; J. F. R., of Pa., $30, and H. & R., of N. Y., $20.

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Ranlett's Architecture, 2 Vols., bound,	$12,00
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Duggan's great work on the Stone, Iron, and Wood Bridges, Viaducts, &c., of the United State's Railroads. Published monthly in parts to be completed in 12 parts. Parts 1 and 2 now ready, each	,75

N. B. This work is supplied to subscribers only.

THE GRAEFENBERG MANUAL OF HEALTH.—The Manual of Health just published by the Graefenberg Company, 7 parts, 300 pages, 12mo. This is the most useful and comprehensive, as well as the cheapest medical work extant, and should be in the hands of every family. Part 1st contains an account of the different medical theories of the present day, both good and bad, and their relation to the health of the community. Part 2d presents a new doctrine: The Americo-Graefenberg System, which need but be understood to command the confidence of the whole community. Part 3d describes the causes, symptoms and treatment of almost every form of disease, including those diseases peculiar to females and children, useful to all classes, even to physicians, as a hand-book. Part 4th contains important directions for preserving health, &c. Part 5th, Hints for Nurses, treatment of persons recovering from sickness, cookery for the sick, &c. Part 6th, Domestic remedies described, including mode of raising and preserving medicinal roots, &c., making lotions, poultices, colognes, cosmetics, &c. Part 7th contains a collection of useful tables, recipes, &c. For sale at the office of the Graefenberg Co., 50 Broadway, and by booksellers generally. Price 50 cents. Liberal discount to dealers.

NOTICE TO POSTMASTERS.—As it is the wish of the Company to distribute this work extensively, any Post Master forwarding $2 for four copies shall be entitled to one copy gratis. tf

VERY IMPORTANT.—To persons owning a mill privilege on a small stream of water where they can obtain 24 feet or more fall, in a short distance—about 35 feet is preferred—the subscriber will furnish a motive power and fixtures which is acknowledged by all who have seen the operation not to be excelled. A specimen can be seen in the South East part of the town of Canaan, 6 miles from Falls Village, and in the South part of the town of Washington, Berkshire Co., Mass., 8 miles East of Lenox Court House, and in the Shaker Village of New Lebanon, Columbia, Co. N. Y. It is simple in its construction and very permanent and durable. It is peculiarly convenient for a common sawmill. I commonly use about 12 square inches of water for a sawmill and make it saw 100 feet of boards in ten minutes.

For further particulars enquire at the office of the Litchfield Enquirer, by letter to the subscriber directed to Falls Village, Litchfield County Conn. or to Daniel Copley New Lebanon, Columbia Co., N. Y. I have also a very important improvement for the Sawframe and the pitman irons, which I warrant to excel all others.

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The Editors are so situated as to have access to all the scientific publications of America, Great Britain, France, and Germany; and have also received for the present volume, the approbation as well as the counsel and personal contributions of many of the ablest scientific men in this country, among whom are Profs. Agassiz, Horsford, and Wyman, of Harvard University.

As the work is not intended for scientific men exclusively, but to meet the wants of the general reader, it has been the aim of the editors that the articles be brief and intelligible to all.

The work will be published early in March, and will form a handsome duodecimo volume of about 380 pages, with a portrait of Prof. Agassiz. As the edition is limited, those desirous of possessing the first volume of the publication, must make an early application. On the receipt of one dollar, the publishers will forward a copy in paper covers, by mail, post paid.

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SCRANTON & PARSHLY, New Haven, Conn. have just finished and will sell, to the first who will fork over the cash, 2 splendid side Lathes, 12 feet long, swings 25 in., weighs 2800 pounds, with back and screw gearing—centre follower, rest, drill chuck, and overhead reversing pullies—all complete, price $300. It is a rare chance for those in want of Lathes. Also, 7 of those 8 feet Lathes, a. $125; each. The fact that 5 of them have been sold within the last 10 days, is all that need be said. Send the money and we will ship to your order. Other Lathes (large 2d lathe excepted) as heretofore advertised in this paper, for sale at low prices as usual. 22 tf

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by

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Scientific Museum.

Tanning--Practical Remarks.

The articles, "Practical Remarks on Tanning" are furnished by one of the most ingenious, experienced, and largest leather manufacturers in our country. They will be continued, so as to describe the whole process, but if there be some interruptions in the regularity of their publication, our readers will bear with us.

Results of some Experiments on the Explosion of Burning Fluids.

READ BEFORE THE AMERICAN ACADEMY OF ARTS AND SCIENCES.—BY PROF. HORSFORD.

It has been maintained, that several of the various preparations, used under the general denomination of Burning Fluids, are in certain conditions, explosive. It has been asserted, on the other hand, by venders, they are not explosive. Wherein the misapprehension lies, how the numerous accidents that have occured in the use of these preparations are to be explained, and by what precautions such accidents may be prevented, have been subjects of experimental inquiry.

The burning-fluids, as a class, are rectified spirits of turpentine, or turpentine with a mixture of a small percentage of alcohol, or of some other inflammable body readily mixing with or soluble in turpentine.

Turpentine, alcohol, ether, and the burning-fluids, when fired in an open vessel, burn at the surface as long as a supply of oxygen is kept up. A slight report attends the flash of flame at the commencement of the combustion. The accidents with burning-fluids ordinarily occur during the filling of lamps from the cans, when the chamber of space above the fluid within the can or lamp was larger, and always in the presence of flame. A mixture of hydrogen (an inflammable gas) with oxygen (an ingredient of atmospheric air), in the proportion of two volumes of the former to one of the latter, is eminently explosive. Atmospheric air, substituted for oxygen, lessens the violence of the explosion when flame is applied. The carbo-hydrogen, employed for city illuminations, may be substituted for the hydrogen, and the explosive property, somewhat impaired, be still possessed by the mixture. Certain proportions of the gases are better suited to produce violence of explosion.

It has been found that the vapor of common spirits of wine, ether, and of two varieties of burning-fluid, may severally be substituted for the hydrogen, and the explosive property remain essentially the same, though of equal energy.

In these facts, lies the explanation of the phenomena that have been observed with burning-fluids.

The following experiments were made:—

I. A current of air was directed into the upper part of a loosely stoppered laboratory glass spirit-lamp, while burning, causing, thereby, a mixture of alcohol-vapor and air to rush past the flame. After a moment or two, the jet took fire, and was instantaneously followed by explosion. This result was invariable.

II. After permitting a drop of alcohol, in a large glass flask of small neck, to evaporate for a moment, and applying flame to the mouth, explosion resulted generally, though not invariably.

III. Ether similarly treated yielded less uniform results, because, probably, of greater difficulty of obtaining the proper mixture of ether-vapor and air.

IV. A variety of burning-fluid in extensive use, said by the venders not to explode, was subjected to similar experiment, with still less frequent affirmative results. They were, however, sufficent to show that explosions with it are possible. Similar experiments have been made with another variety of burning-fluid, by Dr. Morrill Wyman, with like results.

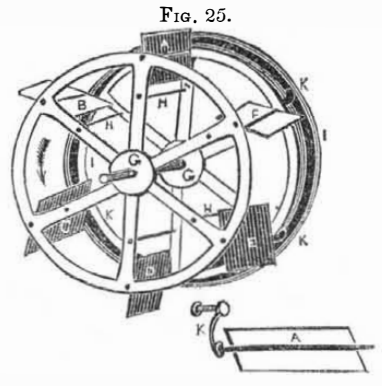
It is, then, conceivable, that, when the proper relative amounts of the vapor of burning-fluid and atmospheric air are mixed together, as they may be in the upper part of a partially filled can or lamp, and a flame is brought sufficiently near, explosion must result. If the quantity or mixed gases be large, the explosion may cause the destruction of the containing vessel, or if that remain entire, it may drive out a portion of fluid, which, taking fire, may cause more or less injury. The course of safety has been pointed out by the dealers in these articles for illumination. It is to fill the lamps (the tops of which screw on and are not supplied with special air-holes) in the absence of flame, by daylight, for example; in which case no explosion can occur.

History of Propellers and Steam Navigation.

[Continued from page 192.]

The accompanying engraving represents a plan for making the paddles enter and leave the water in a vertical position by an extra eccentric wheel moving the paddles on their axis—the axis of them passing through their centre. We are not able to tell the inventor's name, we believe, however, that it is "*Poole*," but the invention is at least twenty years old. A B C D E F are the paddles, which turn round upon their axis as the large wheel to which they are applied revolves. H H H H H are the rods to the two sides of the wheel. I I I I are the concentric rings, with an opening or groove between them, which forms the path for the crank arms, K K K K, to move in.—The centre of the guide rings being eccentric to that of the wheel, causes the paddles to assume the positions represented in the engraving, which were found to be best adapted to the motion of the vessel. The paddle C is supposed to be just dipping into the water, while D is deeply immersed, and E just rising out of it.

Fig. 25.



The small figure below the wheel is an underside perspective view of a paddle separately; K is the crank arm connected at one end to the axis, A, and at the other to the anti-friction roller before mentioned, which travels in the groove of the railway.

We have seen no less than three separate re-inventions of this paddle wheel, within two years. Two of these were invented by men who constructed models and brought them to New York, the one from St. Louis, the other from Connecticut. The other was a drawing only, made by a gentleman in New York. Had these gentlemen been acquainted with the above invention, it would have saved them much labor, study, and, consequently, expense. But what is stranger than all this, and what we would not have expected, we are informed that Mr. David Napier, of London, a first rate and one of the most experienced marine engineers in the world (not the builder of the Cunard engines), constructed a steamer with wheels like the above, in 1848. His steamboat exhibited astonishing speed, surpassing every steamboat on the Thames, but this might have been owing to (that is our opinion) some other thing than the paddle wheels, perhaps the engines, or build of the vessel. At any rate, its superior speed lasted only a few weeks, when, from the number of breakages, she had to be laid aside, and was dismantled of her new-fangled wheels. Although her speed was so great, she seldom made a trip without breaking a ring of one or both wheels, an she was totally unfit for sea navigation, from this very cause. Economy embraces, not the speed of a trip, but the number of trips in a given time, performed at the least expense.

In looking over our list of propelling contrivances, we perceive that some of them, novel in themselves, are without the names of the inventors attached to them, we must therefore just present them as they are, with the date, as near as can be found, of the invention. The great benefit that we wish to perform is to show what has been already invented, to prevent others from spending their time and money on the like projects. We have also a few communications on the subject, which will take their place in regular order.

Polar Origin of the Tides.

The source of the tides is, therefore, to be sought in the great reservoir of ocean round the Southern Pole. This polar reservoir is agitated on opposite sides by the moon in its alternate lower and upper transits, and by the sun in less degree. Here the great central agitation seems to commence, and hence on all sides it seems to flow northward. From the South Pole this great agitation flows into the Indian Ocean; and proceding northward, the great tide-wave strikes with violence on the shores of Hindostan, and finaly in the mouth of the Ganges, where it expends its force on the shores in the form of the well-known and terrific bore of the Hoogly. The Atlantic, in like manner, receives from the southern reservoir its great wave of tide, which passes northward with impetuosity, and expends its force on the shores of Britain and North America; where again it becomes the enormous steam-tide of the Bristol Channel, and the destroying surge of the Bay of Fundy, so well known to all mariners.—From the south, in like manner, the Pacific should receive its great tide, were it not barricaded out by innumerable submarine steppes, and its thousands coral reefs, and its myriads of happy islands, to whose calm seas no propagation of this great horizontal-acting wave can gain access. It is by depth and uninterrupted bottom only that a great wave like the tide can force entrance; it is only the small waves raised by a local tempest, that travel over the surface. An action like the tide, extending uniformly to all depths of the ocean, cannot be propagated on a superficial coating alone.—The tides are built out of the Pacific by submarine works, and enter it alone and with difficulty by the eastern side of America, where diffused and rapidly diminishing, the tide extends a certain way through the more open parts of the sea, continually diminishing in intensity. In the North Pacific we have neither the bores of a Hoogly nor the terrific tides of a Bay of Fundy.

Burns and Scalds.

The following article on Burns, by Dr. Reese from the Journal of Medical Sciences, is of great practical importance and will no doubt be the means of doing much good. Dr. Reese has long been superintending Physician of the Bellevue Hospital, and is very eminent in his profession.

Burns—Among the most numerous cases brought into the surgical wards of charity hospitals, everywhere, may be reckoned the injuries received by burns and scalds, which, when extensive, are too often fatal. In the treatment of these injuries we have had great experience and uniform success, when patients were brought in soon after the injury. No fatal case of recent burn has occurred in the hospital, although several have been extensive and severe. The universal treatment of all such cases is to cover the parts with wheaten flour thrown over the wounds by a dredging-box; which, if thoroughly done so as to exclude the air, and prevent its temperature from reaching the suffering tissues, will afford instant relief from pain, and allay all that nervous irritation which is the chief source of immediate danger in all cases of extensive burns. We have had opportunity to test this practice in terrible burns occasioned by explosions of gunpowder, in scalds from the bursting of steam-boilers, in examples of persons while drunk falling into the fire, and others in which the clothes were burnt off the body by the combustion of spirit gas, &c. In all these cases, and in some of them scarcely any portion of the body had escaped—and notwithstanding, in a few of them, the integuments were literally baked, so that extensive and deep-seat-supperation and sloughing were inevitable, and had afterward to be endured—the external application of the flour was in the first instance our only remedy, and this was continued for one or more days, while the acute effects of the injury demanded it.—The superficial portions of the burns or scald would often heal under this application alone; and the solutions of continuity, more or less deep, which remained open and discharging, were then dressed with lime water and oil, by means of a feather, to which creosote was added if the granulations were slow, or the sloughs tardy in becoming loose. Under this dressing the most formidable burns have been healed; and even when the face has been involved, there has been scarcely any considerable deformity. In one of our patients, the face being horribly burned by an accidental explosion of gunpowder, the grains of powder having been imbedded in the skin, very great apprehensions were indulged that the discoloration thus produced would permanently disfigure and deform the countenance. But, after the persistent application of the flour for three successive days, and until the tumefaction of the face and head had subsided, it was found that, with a few applications of the lime-water dressing, the cicatrization was complete, and even the discoloration was removed.

If this simple remedy were resorted to in the severe scalds sometimes occurring from explosions of steamboat boilers, &c. there can be little doubt that the fatality of such burns would be very rare; while the popular and mischievous methods of applying raw cotton, oil, molasses, salt, alchohol, spirits of turpentine, sugar of lead water, ice, &c. to extensive and deep burns, are, all of them, injuries, and often destructive to life.

Curious Effect of the Electric Light.

A gentleman near Waltham Abbey was experimenting a short time ago with the electric light, and having a wound in his left hand he touched the conducting wire with it, and at once he felt an irritation in his hand, and it became swollen, and his whole body was soon covered with tumors.

Duration of Life.

In M. Lombard's returns for Geneva, the average longevity of stone-cutters is stated at 34 years; sculptors, 36; millers, 42; painters, 44; joiners 49; butchers, 53; writers, 51; surgeons, 54, masons, 55; gardeners, 60; merchants, 62; Protestant clergymen, 63; and magistrates, 69 years.

One of Dodge's Patent Cop Spining Frames is spining eight and five-eighths skeins per spindle daily, (working usual time) of No. 37½ yarn, in J. C. Peckham & Co.'s mill, in East Greenwich, R. I.

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